

A REVISION OF THE NORTH AMERICAN SPECIES OF ICHNEUMON-FLIES OF THE GENUS ODONTOMERUS

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This paper was originally planned as an attempt to straighten out the existing confusion as to the identity of the species in that group of *Odontomerus* Gravenhorst having entirely black body and red legs. Since, however, my studies indicate that few of the North American species are adequately described, I have expanded it to include discussion of all the species together with a specific key.

In the past ten years or a little more, three papers dealing with North American species of *Odontomerus* have appeared.

J. C. Bradley¹ discussed at some length the identity of the three species *mellipes* (Say), *vicinus* Cresson, and *canadensis* Provancher, concluding that *mellipes* and *vicinus* are good species and that *canadensis* is a synonym of *vicinus*. He also presented a key to all the North American species and described a new species, *albotibialis*, allied to *mellipes*.

S. A. Rohwer² overlooking Bradley's paper, revised the North American species, recognizing ten species, synonymizing his own *errans* with *mellipes*, and considering *mellipes*, *canadensis*, and *vicinus* as distinct species. The last mentioned, however, he recognized only in the male, confusing the female with what he called *canadensis*.

G. S. Walley³ in a note on *mellipes* arrived at the conclusion that *canadensis* is synonymous with *mellipes*.

We thus have three workers, each with a fairly representative series of specimens, arriving independently at three different conclusions in regard to this group of three species.

In order, if possible, to straighten out the confusion, I have borrowed from Cornell University and the Canadian National collection the material on which Bradley and Walley based their conclusions and also the specimens in the collection of the Boston Society of Natural History and the Pennsylvania State Depart-

¹ Bull. Brooklyn Ent. Soc., vol. 13, 1918, pp. 100-104.

² Proc. U. S. Nat. Mus., vol. 57, 1920, pp. 454-460.

³ Can. Ent., vol. 59, 1927, p. 74.

ment of Agriculture. A careful study of this material together with the National Museum specimens studied by Rohwer is the basis of this paper.

I am forced to the conclusion that the females referred by the three authors to two species really include five species, *mellipes* (Say), *canadensis* Provancher, *vicinus* Cresson, and two undescribed species. In addition I find a sixth apparently distinct species, which none of the three other authors has seen.

The unique type of *albotibialis* Bradley I have not seen, nor have I found any specimen that agrees entirely with the description. It seems probable, however, that it comes within the range of variation of the species that I am calling *canadensis*.

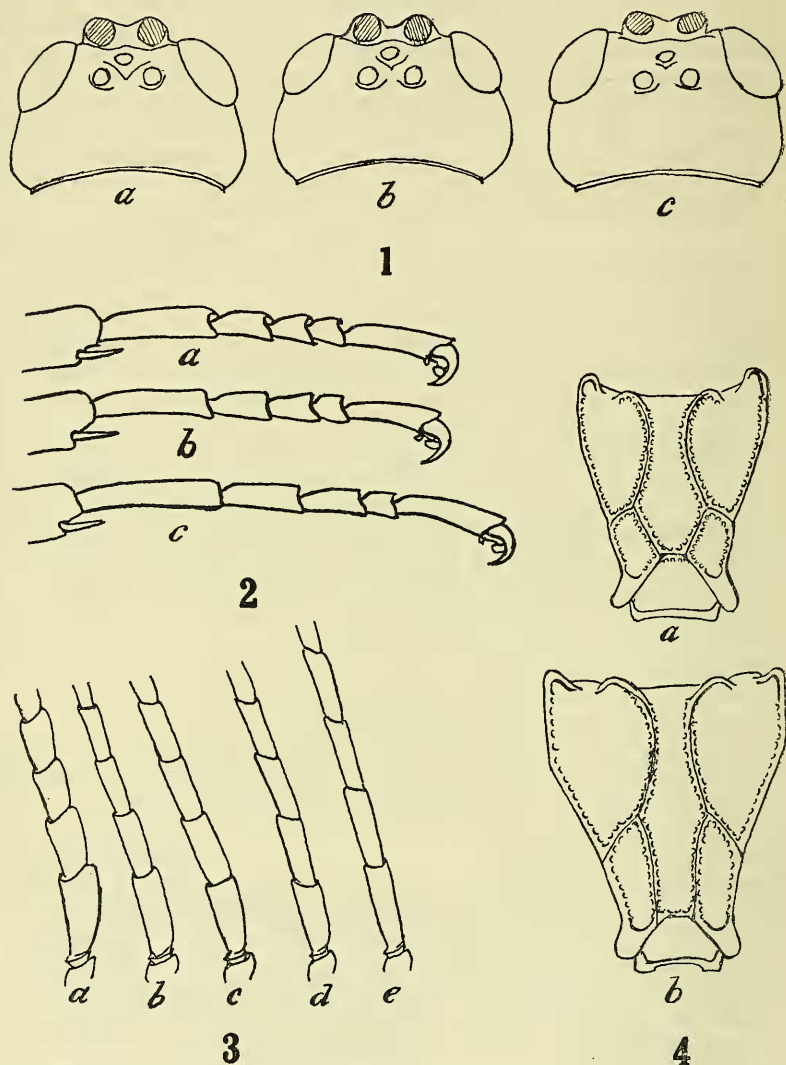
Since Rohwer has designated a neotype for *mellipes* I here accept that specimen as typical of the species. I have had no opportunity to examine the type of *canadensis*, but for the purpose of this paper I am accepting as that species the one represented by the majority of the specimens assigned to it by Rohwer, although, as will be pointed out later, there is some doubt of the correctness of the determination. I am in accord with Bradley as to the identity of the female of *vicinus*.

My thanks for the loan of material and permission to retain certain specimens are hereby extended to those in charge of the collections of Cornell University, the Boston Society of Natural History, the Canadian National collection, and the Pennsylvania State Department of Agriculture.

KEY TO THE NORTH AMERICAN SPECIES

1. Abdomen red, petiole sometimes blackish-----2.
Abdomen black, rarely more or less reddish-----7.
2. Legs entirely black; apical joint of hind tarsus fully twice as long as third joint -----*atripes* Rohwer (female).
Legs largely red-----3.
3. Thorax strongly depressed; petiolar area barely a third as long as dorsal face of propodeum and nearly vertical; legs with very long hair in addition to the short pile; ovipositor much longer than body-----*bicolor* Cresson.
Thorax not or barely depressed; petiolar area much more than a third as long as dorsal surface and oblique; legs with long hairs at most on coxae and trochanters; ovipositor at most slightly longer than body-----4.
4. Coxae and trochanters black or piceous-----5.
Coxae and trochanters red-----6.
5. Propodeum without distinct apophyses; ovipositor as long as body.
abdominalis Cresson.
Propodeum with distinct apophyses; ovipositor distinctly shorter than body.
brevicaudus, new species.
6. Lateral impressions of pronotum not foveolate; cephalo-caudal length of temple about equal to that of eye-----*strangaliae* Rohwer.
Lateral impressions of pronotum strongly foveolate; cephalo-caudal length of temples distinctly greater than that of eye--*dichrous* Rohwer (female).

7. All coxae and trochanters, sometimes legs entirely, black or dark piceous...8.
Legs red, rarely hind legs largely blackish, front and middle coxae and trochanters never black.....10.
8. Scutellum and basal lateral areas of propodeum densely, finely punctate; second and following tergites of male rather densely punctate.
aethiops Cresson.
Scutellum at most sparsely punctate, basal lateral areas polished and impunctate; second and following tergites in male practically impunctate...9.
9. Hind tarsus distinctly shorter than tibia, its basal joint about four times as long as thick; front and middle femora piceous; propodeal apophyses prominent.....*atripes* Rohwer (male).
Hind tarsus fully as long as tibia, its basal joint about six times as long as thick; front and middle femora red; propodeal apophyses small.
dichrous Rohwer (male).
10. Median carinae of propodeum very weak or obsolete; apophyses small.
alaskensis Rohwer.
Median carinae and apophyses well developed.....11.
11. *Female*.—Apical joint of hind tarsus twice as long as second joint (fig. 2a); basal flagellar joint fully a half longer than second, following joints not nearly twice as long as thick and much thicker at apex than at base (fig. 3a).
Male.—Apical tarsal joint longer than second joint; basal flagellar joint much longer and distinctly thicker than second (fig. 3b).....*mellipes* (Say).
Female.—Apical tarsal joint not nearly twice as long as second (fig. 2b, c); basal flagellar joint not nearly a half longer than second, following joints fully twice as long as thick and nearly or quite cylindrical (fig. 3c, e).
Male.—Apical tarsal joint not or barely as long as second; basal flagellar joint conspicuously neither longer nor thicker than second (fig. 3d).....12.
12. Mesoscutum and scutellum densely punctate; antennae distinctly shorter than body, middle joints in female much less than twice as long as thick, in male barely twice as long as thick.....13.
Mesoscutum and scutellum polished, at most very sparsely punctate; antennae nearly or quite as long as body and very slender, middle joints in female nearly or fully twice (in male more than twice) as long as thick.....14.
13. Hind tibia and tarsus black.....*tibialis*, new species.
Hind tibia and tarsus red.....*punctatus*, new species.
14. Temples strongly flaring (fig. 1a); petiolar area in female much less than half as long as horizontal face of propodeum (fig. 4b); hind coxae and femora in male mostly black or piceous.....*vicinus* Cresson
Temples at most only slightly wider than eyes (fig. 1c); petiolar area in female fully half as long as horizontal face of propodeum (fig. 4a); hind coxae and femora in male red (rarely the coxae and apex of femur are slightly piceous).....15.
15. Second tergite regularly longitudinally striate at base...*striatus*, new species.
Second tergite irregularly transversely wrinkled at extreme base.....16.
16. Hind tibia red to fuscous, sometimes whitish below and rarely largely whitish or largely black, if largely whitish the ovipositor not much longer than the body.....*canadensis* Provancher.
Hind tibia distinctly whitish, fuscous only at apex; ovipositor much longer than body.....*albotibialis* Bradley.



FIGURES 1-4.—DETAILS OF ODONTOMERUS. 1, HEAD OF: *a*, VICINUS; *b*, MELLIPES; *c*, CANADENSIS. 2, HIND TARSUS OF FEMALE OF: *a*, MELLIPES; *b*, TIBIALIS; *c*, CANADENSIS. 3, BASE OF FLAGELLUM OF: MELLIPES, *a*, FEMALE, *b*, MALE; TIBIALIS, *c*, FEMALE, *d*, MALE; *e*, CANADENSIS, FEMALE. 4, DORSAL FACE OF PROPODEUM OF: *a*, CANADENSIS; *b*, VICINUS

ODONTOMERUS ATRIPES Rohwer

Odontomerus atripes ROHWER, Proc. U. S. Nat. Mus., vol. 45, 1913, p. 358; vol. 57, 1920, p. 456, female, male.

Odontomerus aethiops JOHNSON, Biol. Surv. of Mt. Desert Region, Part 1, The Insect Fauna, 1927, p. 137.

From any other of the species with red abdomen this species is very distinct in its entirely black legs. Structurally it is most similar to *mellipes* (Say).

Female.—Facial quadrangle about equal in length and breadth; head slightly broader across temples than across eyes; temples a little longer from front to back than short diameter of eye, strongly sparsely punctate; face coarsely confluent punctate; ocell-ocular line distinctly longer than postocellar line; antennae barely three-fourths as long as body, rather stout, middle joints of flagellum barely a half longer than thick, basal joint about twice as long as thick and about a third longer than second; pronotum polished, upper margin finely and sparsely punctate, impression foveolate; mesoscutum polished with a few punctures along the notauli; notauli obscurely foveolate posteriorly, the impression formed by their junction longitudinally striate; scutellum sparsely punctate; mesopleurum polished with very sparse punctures, sternum more densely punctate; metapleurum and sides of propodeum opaque, the former rugulose; propodeum dorsally mostly polished, rather short, the petiolar area more than half as long as horizontal face, slightly concave, apophyses thick and prominent; legs very stout; hind tarsus much shorter than tibia, apical joint fully twice as long as third; abdomen polished, first tergite transversely rugulose, apical tergites very finely punctate; ovipositor sheath almost exactly as long as body.

Black with legs black or piceous, abdomen red with first segment except apex black.

Male.—Sculpture throughout more distinct; antennae as long as body and slender with middle joints twice as long as thick, first joint of flagellum only slightly shorter than second; hind tarsus a little shorter than tibia, apical joint barely longer than second and much less than twice as long as third; abdomen entirely black.

A much undersized female in the National Collection (5 mm. long) has the legs pale reddish piceous.

The specimens examined include four females and two males, including the type and allotype, in the National Museum, two females in the Canadian National Collection, one female in the Cornell Collection, and two females and one male in the Collection of the Boston Society of Natural History.

These show a range from Quebec to Pennsylvania, the other province and States represented being Ontario, Maine, New Hampshire, Massachusetts, and New York.

The male in the collection of the Boston Society of Natural History is listed by C. W. Johnson as *aethiops* Cresson in the Mount Desert list.

ODONTOMERUS BICOLOR Cresson

Odontomerus bicolor CRESSON, Trans. Amer. Ent. Soc., vol. 3, 1870, p. 169.—PROVANCHER, Faune Ent. Can. Hym., 1883, p. 490.—BRADLEY, Bull. Brooklyn Ent. Soc., vol. 13, 1918, p. 102.—ROHWER, Proc. U. S. Nat. Mus., vol. 57, 1920, p. 456, female.

The discussion of this species is based on the two Texan specimens mentioned by Rohwer, one of which was compared by him with the type and labelled a homotype. I have not seen the type.

Thus far the male is unknown, but the female is very distinct. A few of its characteristic features are used in the key. Others are as follows: Head behind eyes broader than at eyes, the temples longer from front to back than short diameter of eyes; face and temples coarsely punctate, the punctures on the face more dense but not crowded; postocellar and ocellocular lines about equal and nearly twice as long as diameter of an ocellus; flagellum very slender with all joints strongly elongate, the basal joint only a little longer than second; head, thorax, petiole, and legs with very long suberect hair that is especially conspicuous on the legs; thorax so depressed that it is conspicuously broader than deep with its dorsal and ventral surfaces distinctly flattened, its dorsal line in profile nearly straight from prescutum to apical carina of propodeum; metapleurum and sides of propodeum coarsely rugoso-punctate; mesoscutum, scutellum, pleurum, and sternum polished and sparsely punctate; notauli strongly foveolate; propodeum with its upper surface unusually long and flat, the combined median areas correspondingly long and narrow and only slightly constricted at junction of basal area and areola; carinae defining the very short vertical petiolar area strong, with elevations at the intersections of the longitudinal carinae; hind femur very thick, with a roundly elevated denticulate keel behind the rather slender tooth; apical joint of hind tarsus distinctly longer than second but not fully twice as long as third; second and third tergites very finely transversely aciculated; ovipositor fully a half longer than body.

ODONTOMERUS ABDOMINALIS Cresson

Odontomerus abdominalis CRESSON, Proc. Ent. Soc. Philadelphia, vol. 4, 1865, p. 289.—ROHWER, Proc. U. S. Nat. Mus., vol. 57, 1920, p. 456, female.

The specimens referred to this species by Bradley are *strangaliae* Rohwer. In his paper Bradley mentions only two specimens, but in

the Cornell Collection there are two specimens of *dichrous* Rohwer determined by him as *abdominalis*.

The type of *brevicaudus*, new species, described below, was compared with the type of *abdominalis* for me by Miss Grace Sandhouse on a recent visit to Philadelphia. About the only differences noted are the longer ovipositor in *abdominalis* (as long as body) and its lack of apophyses on the propodeum. I have not examined the type.

ODONTOMERUS BREVICAUDUS, new species

Female.—Length 7 mm.; antennae 6 mm.; ovipositor 6 mm. Very closely related to *dichrous* Rohwer and perhaps only somewhat unusual specimens of that species but the two females before me differ constantly from that species as follows: First flagellar joint barely, second much less than, twice as long as thick; mesoscutum, scutellum, and basal lateral areas of propodeum evenly, finely punctate; entire mesopleurum except speculum distinctly punctate; hind femur stouter; tarsus much shorter than tibia; its basal joint little more than three times as long as thick; ovipositor distinctly shorter than body.

Color as in *dichrous*, black with abdomen and legs reddish, coxae and trochanters piceous, and wings somewhat infumate.

Type-locality.—Hedley, British Columbia.

Type.—Canadian National Collection.

Paratype.—Cat. No. 42033, U.S.N.M.

Two specimens, the type taken July 23, 1923, by C. B. Garrett, and the paratype captured by H. L. Seamans at Waterton, Alberta, on July 10, 1923.

In the paratype the left antenna is entirely missing and of the right only the scape and pedicel are present. It is about 10.5 mm. long with ovipositor 9 mm.

ODONTOMERUS STRANGALIAE Rohwer

Odontomerus strangaliae ROHWER, Proc. U. S. Nat. Mus., vol. 53, 1917, p. 457, female.

Odontomerus abdominalis BRADLEY, Bull. Brooklyn Ent. Soc., vol. 13, 1918, p. 103 (part).

This eastern species is very closely allied to the western *dichrous* Rohwer, perhaps only a variety of that species. However, it appears to differ constantly in the lack of foveolation in the pronotal impression; in having the temples and mesopleurum and sternum very sparsely punctate; the petiolar area nearly or quite as long as broad and more than half as long as the horizontal surface of propodeum, the nervulus interstitial; and the tarsi slightly more slender, though the proportionate length of the joints is about the same as in *dichrous*. Usually also the temples are slightly shorter from

front to back, being subequal to the short diameter of the eye; and the ovipositor slightly shorter, being normally almost exactly as long as the body.

Palpi stramineous; coxæ always red.

All three of the characters employed by Rohwer in his key to species for distinguishing *dichrous* and *strangaliae* are subject to such variation that they are unusable.

These observations are based on eleven specimens, including the type, in the National Collection, five from the Cornell University Collection, and three from the Canadian National Collection.

The male is unknown.

The distribution of this species as indicated by the specimens examined is from Quebec to Virginia, specimens being at hand from Quebec, Ontario, New York, Pennsylvania, Maryland, and Virginia.

ODONTOMERUS DICHROUS Rohwer

Odontomerus dichrous ROHWER, Proc. U. S. Nat. Mus., vol. 45, 1913, p. 361; vol. 57, 1920, p. 457, female.

This and *strangaliae* Rohwer may be western and eastern varieties of the same species, but, as pointed out under the latter species, they are easily distinguished by several characters that appear to be constant for the material examined.

Female.—Temples usually distinctly punctate, distinctly longer from front to back than the short diameter of the eye; malar space a little shorter than basal width of mandible; ocell-ocular line longer than postocellar line, diameter of an ocellus hardly two-thirds as long as ocellocular line; antennae about five-sixths as long as body, first flagellar joint about two and a half times as long as thick and a third longer than second; pronotum strongly foveolate in lateral impression and rather coarsely punctate in humeral angle; mesopleurum below and sternum strongly punctate; mesoscutum and scutellum polished, very sparsely punctate, notauli indistinctly foveolate; metapleurum rugose, opaque; propodeum polished, basal lateral areas very sparsely punctate, pleural areas more or less roughened, petiolar area sometimes rugose throughout, broader than long and barely half as long as horizontal surface of propodeum; nervulus antefurcal; hind tarsus hardly as long as tibia, basal joint about four times as long as thick, fifth much longer than second and about twice as long as third; ovipositor a little (about one-tenth) longer than body.

Palpi usually more or less infusate; coxae frequently more or less piceous.

Male.—Heretofore this species has been known only in the female. The National Collection contains a single male that appears to be of this species. It differs from the female much as does the male of *atripes* Rohwer. The abdomen is black, the hind legs are nearly black, and the wings nearly hyaline. From the male of *atripes* it is easily distinguished by its red front and middle femora, more slender hind femur, longer and more slender hind tarsus, and the weakly developed propodeal apophyses. From the male of *vicinus* Cresson, which it closely resembles, its narrower temples and black front and middle coxae sufficiently distinguish it.

The male specimen described above was taken at Kaslo, British Columbia, by H. G. Dyar.

The foregoing discussion is based on seven females and one male in the U. S. National Museum, two females in the Cornell Collection, and two females in the Canadian National Collection. All of these specimens are from the States of Washington and Idaho and the Province of British Columbia.

ODONTOMERUS AETHIOPS Cresson

Odontomerus aethiops CRESSON, Proc. Ent. Soc. Phila., vol. 4, 1865, p. 289.—
ROHWER, Proc. U. S. Nat. Mus., vol. 57, 1920, p. 457, female, male.

Sufficiently distinct, in the female, from any of the other North American species by its entirely coal-black body and legs, to make detailed discussion unnecessary. In most details of structure it is very similar to *atripes* Rohwer. I have not seen the male, though judging from the original description its deep black color, especially of the legs, and punctate abdomen would distinguish it from the other black-legged males.

As pointed out under *atripes* the specimen recorded by Johnson in the Mount Desert list as *aethiops* is a male of *atripes*.

ODONTOMERUS ALASKENSIS Rohwer

Odontomerus alaskensis ROHWER, Proc. U. S. Nat. Mus., vol. 45, 1913, p. 360; vol. 57, 1920, p. 457.

Only the two specimens of the type series are known. It is very distinct from any of the other species by reason of the obsolete median and basal carinae of the propodeum. Other significant characters not noted by Rohwer are as follows: Temples almost flaring; basal joint of flagellum barely longer than second joint; thorax distinctly depressed, horizontal face of propodeum flat, straight in profile and about four times as long as petiolar area, apical carina strong and practically without apophyses; base of

second discoidal cell unusually broad; first tergite very short and broad, flattened above.

ODONTOMERUS MELLIPES (Say)

Figs. 1b, 2a, 3a, and b

Anomalon mellipes SAY, Contrib. Maclur. Lyc. Phila., vol. 2, 1828, p. 75 (LeConte Ed., vol. 1, p. 378), female.

Odontomerus mellipes CRESSON, Trans. Amer. Ent. Soc., vol. 3, 1870, p. 168.

Odontomerus errans ROHWER, Proc. U. S. Nat. Mus., vol. 45, 1913, p. 360, female.

Odontomerus mellipes BRADLEY, Bull. Brooklyn Ent. Soc., vol. 13, 1918, p. 103, female, male (part).—ROHWER, Proc. U. S. Nat. Mus., vol. 57, 1920, p. 458, female, male (part).—WALLEY, Can. Ent., vol. 59, 1927, p. 74 (part).

Odontomerus canadensis ROHWER, Proc. U. S. Nat. Mus., vol. 57, 1920, p. 458, male (part).

This is the *mellipes* of Rowher's neotype.

The characters of the tarsi and antennae as employed in the foregoing key are far more reliable than the characters of the head and first tergite used by Rohwer.

Female.—Head distinctly broader across temples than across eyes but temples not distinctly flaring; face and base of clypeus densely punctate, temples sparsely so, apex of clypeus transversely rugulose; postocellar line much shorter than ocell-ocular line; facial quadrangle at least as broad as long; antennae stout, strongly tapering toward apex, much shorter than body, first joint of flagellum hardly twice as long as thick at apex and fully a half longer than second, other joints all much less than twice as long as thick, middle joints little longer than thick, those toward base much thicker at apex than at base. Thorax polished, mesoscutum, scutellum, upper margin of pronotum, lower mesopleurum and sternum finely and sparsely punctate, metapleurum irregularly rugulose opaque; propodeum polished and usually more or less punctate dorsally, more rugulose and subopaque laterally; legs very stout, hind femur nearly or quite half as deep (measured across apex of tooth) as long; hind tarsus much shorter than tibia, apical joint nearly twice as long as second, that of middle leg more than twice as long as second, front tarsus exclusive of claws very little longer than tibia. Abdomen rather stout, subpolished; first tergite hardly two and a half times as long as broad at apex, evenly arched above, longitudinal striate laterally, the striae bending inward posteriorly and sometimes crosses over the middle, sternite extending only a short distance beyond the spiracle; second tergite more or less transversely wrinkled at base; apical tergites very finely pilose and punctate; ovipositor sheath ordinarily slightly shorter than body.

Black; apical portion of clypeus and labrum reddish; flagellum brown; palpi fusco-luteous; wings dilutely infumate; legs testaceous,

front and middle pairs, especially tibiae, paler, tarsi and extensor surface of hind tibia sometimes more or less infuscate; membranous apical portion of tergites sometimes whitish, giving the abdomen a transversely banded appearance.

Male.—Antennae slender, nearly as long as body, flagellar joints nearly cylindrical, first joint a little more than twice as long as thick, distinctly thicker than, and one and a half times as long as, second, middle joint distinctly less than twice as long as thick; legs, especially tibiae and tarsi, much more slender than in female and hind tarsus less distinctly shorter than tibia, apical joint only about a half longer than second, that of middle leg hardly twice as long as second joint, front tarsus distinctly longer than tibia; first tergite three or four times as long as broad, only slightly arched above spiracles, longitudinally striate to apex, sternite extending beyond spiracle more than half way to apex; color as in female.

The foregoing discussion and description are based on 27 females and 4 males in the National Museum, 10 females and one male in the Cornell Collection, one female and three males in the Canadian Collection, and three females in the collection of the Pennsylvania Department of Agriculture. These 38 females and 8 males show a range of from 8 to 13 mm. for females and 6 to 10 mm. for males.

The distribution indicated by these specimens and by published records is from Nova Scotia and South Dakota to North Carolina and Arkansas.

ODONTOMERUS TIBIALIS, new species

Figs. 2b, 3c, and d

Odontomerus canadensis ROHWER, Proc. U. S. Nat. Mus., vol. 57, 1920, p. 458, male (part).—BRADLEY, Bull. Brooklyn Ent. Soc., vol. 13, 1918, p. 12, male (part).

Odontomerus mellipes (SAY) WALLEY, Can. Ent., vol. 59, 1927, p. 74, female (part).

Because of its entirely black hind tibia and tarsus this may prove to be the true *canadensis* Provancher, but Provancher described his species as being brilliantly polished, and one of the most striking features of the present species is its punctate mesoscutum and scutellum. It seems hardly likely that Provancher would have overlooked this sculpture if it were present in his specimens.

Five of the males of the type series were placed by Rohwer under *canadensis*, and one of them was compared by him with Provancher's male. The females here described have been received since Rohwer made his study of the genus. Walley had the species confused with *mellipes*.

Female.—Length 11 mm. Head about as in *mellipes*, but postocellar line about three-fourths as long as ocell-ocular line; facial

quadrangle slightly longer than broad; antennae more slender, first joint of flagellum more than twice as long as thick and barely a third longer than second, all other joints present much longer than thick and nearly cylindrical. Mesoscutum and scutellum densely punctate, sculpture of thorax otherwise as in *mellipes*; hind femur nearly half as deep as long; hind tarsus nearly as long as tibia, apical joint barely a half longer than second joint, front tarsus much longer than tibia. Abdomen about as in *mellipes* except that first tergite is less regularly striate; ovipositor sheath equal to length of body.

Color as in *mellipes* except that antennae, palpi, hind tibia and tarsus, and apex of femur are black.

Male.—Length 10 mm. Flagellum slender, the joints cylindrical and all fully twice as long as thick, first joint only slightly thicker and longer than second; apical joint of hind tarsus hardly as long as second joint; abdomen distinctly punctate; first tergite about four times as long as broad; color as in female.

Type-locality.—Echo Lake, Mount Desert, Maine.

Allotype-locality.—Pisgah Ridge, North Carolina.

Type.—Cat. No. 42034, U.S.N.M.

Paratypes.—In Canadian National Collection and Cornell University.

Described from three females and eight males as follows: Type female captured June 27 by C. W. Johnson; paratype *a* (female) from Aylmer, Quebec, June 7, J. N. Knull; paratype *b* (female) without data; allotype male and paratypes *c-f* (male) reared by W. F. Fiske on June 4, 1905, from larvae of a Melandryid in fir, under Hopkins U. S. No. 35684; paratype *g* (male) Sudbury, Ontario; paratype *h* (male) Ithaca, New York, May 31, 1913; and paratype *i* (male) Montreal, Canada.

Paratype *c* was compared by Rohwer with Provancher's male of *canadensis* and determined as that species.

Paratypes *a* and *g* are in the Canadian National Collection and paratypes *h* and *i* in the Cornell University Collection.

All the females are very nearly of the same size, while the males range from 6 to 13 mm.

ODONTOMERUS PUNCTATUS, new species

Odontomerus mellipes ROHWER, Proc. U. S. Nat. Mus., vol. 57, 1920, p. 458, female (part).

Odontomerus canadensis ROHWER, Proc. U. S. Nat. Mus., vol. 57, 1920, p. 458, female (part).

The type of this species was confused by Rohwer with *mellipes* (Say), and one of the paratypes with *canadensis* Provancher. It is, however, very distinct from those species by the characters used in

the foregoing key. In nearly all respects it is very similar to *tibialis*, and is possibly only a western variety of that species.

Female.—Differs from *tibialis* practically only in that the legs are entirely red and the abdomen distinctly punctate.

Type-locality.—Priest River, Idaho.

Type.—Cat. No. 42035, U.S.N.M.

Paratype b.—Canadian National Collection.

Three females; the type reared under Hopkins U. S. No. 1042 *a* from *Leptura obliterata* Haldeman in grand fir; Paratype *a* taken at Collins, Idaho, July 28, 1898, by C. V. Piper; and Paratype *b* at Lorna, British Columbia, July 31, 1924, on *Picea engelmanni* by R. Hopping, and bearing the number 17203, lot 30.

ODONTOMERUS CANADENSIS Provancher (Rohwer)

Figs. 1c, 2c, 3e, and 4a

Exochus propinquus (Cresson) PROVANCHER, Nat. Can., vol. 7, 1875, p. 134, male.

Odontomerus canadensis PROVANCHER, Nat. Can., vol. 9, 1877, p. 16; vol. 12, 1880, p. 102; Faune Ent. Can., 1883, p. 490, female, male.

Odontomerus mellipes (SAY) BRADLEY, Bull. Brooklyn Ent. Soc., vol. 13, 1918, p. 103, female, male (part).

Odontomerus canadensis ROHWER, Proc. U. S. Nat. Mus., vol. 57, 1920, p. 458, female, male (part).

Odontomerus mellipes (SAY) WALLEY, Can. Ent., vol. 59, 1927, p. 74 (part).—JOHNSON, Biol. Survey of Mount Desert Region, Part 1, 1927, p. 137.

Odontomerus canadensis JOHNSON, Biol. Survey of Mount Desert Region, Part I, 1927, p. 137.

This is *canadensis* as represented by a large majority of the specimens placed under the name by Rohwer. If it is conspecific with Provancher's female type that specimen is rather unusual in the color of the hind tibiae. Some of the smaller females have the hind tibia blackish above and whitish below but none has it entirely black as described for the type. A few specimens have the hind tibia whitish except at apex but have not the length of ovipositor as described for *albotibialis*.

In the female it can be distinguished from *mellipes* as follows: Body and legs not quite so stout; head not or barely wider behind eyes than at eyes; postocellar line very nearly as long as ocellular line; facial quadrangle fully as long as broad; antennae nearly as long as body, slender with flagellar joints cylindrical, first joint about three times as long as thick and barely a fourth longer than second, all others at least a half longer than thick; mesoscutum and scutellum polished impunctate, sternum and lower pleurum very sparsely punctate; hind femur distinctly more than twice as long as deep; hind tarsus nearly as long as tibia, apical joint hardly a half longer than second joint, that of middle leg not twice as long as second, front tarsus much longer than tibia, first

tergite irregularly roughened, usually longitudinally impressed medially; ovipositor sheath fully as long as body but not much longer; palpi stramineous; hind tarsus black, apex of femur and extensor surface of tibia sometimes blackish, especially in small specimens, the under side whitish (entire tibia black according to Provancher).

In the male all the flagellar joints are at least twice as long as thick, and the first joint fully three times as long as thick and only slightly thicker and longer than the second; hind tarsus very nearly as long as tibia, apical joint not or barely as long as second; that of middle leg barely longer than second; first tergite five or six times as long as broad; hind tarsus, usually the tibia, and sometimes the femur dorsally, black or fuscous.

In the series assigned to this species there is great variation in the relative length and breadth of the first abdominal segment, especially in the female, but it is quite obviously variation and not of specific significance.

The foregoing discussion is based on 57 females and 57 males, of which 33 females and 26 males are in the National Museum, 7 females and 10 males from the Canadian National Collection, 8 females and 11 males from the Cornell Collection, 7 females and 10 males from the Boston Society of Natural History, and 2 females in the Pennsylvania State Collection.

This species is apparently distributed entirely across southern Canada and south to Oregon, Virginia, and New Mexico.

Rohwer's figure of the supposed female of *canadensis* is drawn from a specimen of *vicinus* Cresson. The head is poorly drawn in that it does not show the distinctly flaring temples of *vicinus*.

ODONTOMERUS STRIATUS, new species

Female.—Length 12 mm.

This may be nothing more than a somewhat anomalous specimen of *canadensis*, from dark legged specimens of which it differs practically only in having the postpetiole evenly convergently striate and the base of the second tergite evenly, finely, longitudinally striate. In the hind legs the femur at apex, the tibia above, and the entire tarsus are black, the lower side of tibia whitish.

Type-locality.—Lyme, Connecticut.

Type.—Cat. No. 42036, U.S.N.M.

One female taken by William Middleton on June 19, 1918.

ODONTOMERUS ALBOTIBIALIS Bradley

Odontomerus albotibialis BRADLEY, Bull. Brooklyn Ent. Soc., vol. 13, 1918, p. 103, female.

Described from a single female specimen, which I have not seen.

Were it not for the great length of the ovipositor I would suspect it to be a variant of *canadensis*, for all of the other characters

ascribed to it by Bradley occur in one or another of the specimens of that species that I have examined.

ODONTOMERUS VICINUS Cresson

Figs. 1a and 4b

Odontomerus vicinus CRESSON, Trans. Amer. Ent. Soc., vol. 3, 1870, p. 168, male.—BRADLEY, Bull. Brooklyn Ent. Soc., vol. 13, 1918, p. 102, female, male.—ROHWER, Proc. U. S. Nat. Mus., vol. 57, 1920, p. 457, male.

Odontomerus canadensis ROHWER, Proc. U. S. Nat. Mus., vol. 57, 1920, p. 458, fig. 12, female (part).

Bradley was correct in his association of the sexes, while Rohwer had the female associated with *canadensis*.

The very broad flaring temples appear at present to be sufficiently characteristic to distinguish the female of this species from any of the other species with black body and red legs, while the male is further characterized by the black hind legs.

It is the most slender of all this group of species, the first tergite in the female being three to three and a half times as long as broad, with the sternite reaching nearly half way between spiracle and apex; and the abdomen beyond distinctly narrower. The occiput is rather shallowly concave and about as broad as the head measured across the eyes, while the temples flare prominently; the antennae are about as long as the body and very slender. The notauli are posteriorly foveolate; the petiolar area of the propodeum is very short, the apical carina not arching toward the base medially but extending nearly straight across between the apophyses; the hind tarsus is very nearly as long as the tibia with second and apical joints about equal in length, the apical sometimes hardly as long as the second joint; the front tarsus is nearly a half longer than tibia with the apical joint hardly as long as the second; the ovipositor sheath is about a half longer than the body.

In the male the mesoscutum and scutellum are densely punctate and the abdomen entirely opaque granulose, with the basal tergites more or less rugulose.

The foregoing discussion is based on 12 females and 7 males in the United States National Museum, 16 females and 6 males in the Canadian National Collection, 3 females and 2 males from Cornell University, 2 females and 4 males from the Boston Society of Natural History, and 2 females in the Pennsylvania State Collection.

These specimens show a range from Quebec to Virginia, the following Provinces and States being represented: Quebec, Ontario, New Hampshire, Massachusetts, New York, Pennsylvania, Maryland, District of Columbia, and Virginia.